

Ethnomedicinal Perspectives of Botanicals used by Malayali Tribes in Vattal Hills of Dharmapuri (TN), India

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Abstract

An ethnobotanical survey was conducted to collect information about the medicinal plants used by Malayali tribes in Dharmapuri district Tamilnadu, India. Informations presented here were gathered from Malayali tribes using an integrated approach of botanical collections and interview schedules. A total of 7 informants were interviewed and 27 ethno medicinal plant species distributed in 16 families have been documented. Medicinal plants used by Malayali tribes have been listed along with plant parts used with its medicinal significance. For most of the ailments fresh plant materials were invariably used. Further, it could be inferred that plants were most commonly used to cure skin diseases, poison bites, stomachache and nervous disorders. Collected information depicts that Malayali tribes largely depend on medicinal plants to meet their primary health care needs.

Key words: Malayali tribes; medicinal plants; ethno-botany; traditional knowledge

Introduction

India has one of the world's most sophisticated indigenous medical cultures, with an unbroken tradition coming down across more than four millennia. Though this medical heritage is several centuries old, even today people in the rural and remote areas depend upon it for their health care needs. According to WHO report, over 80% of the world population relies on traditional medicine for their primary health care needs (WHO, 2000). Though the traditional medical practices are empirical in nature, over 200 million people in India with limited access to the organized health centers, depend on varying degrees in the traditional system of medicine to cater their health care needs (Farnsworth, 1998). India has two hot spots out of the twelve mega-biodiversity of the world. India being a tropical country is rich in vegetation with a wide diversity. Tribal communities dwelling the remote areas depend on the forest resources to meet their livelihood and health care needs. The medicinal plants in the wild contribute to

cater 80% of the raw materials used in the preparation of drugs. Herbal medicines have been used since antiquity in treating diseases including infectious diseases. Therefore, documentation of traditional knowledge and ethnobotanical information play an important role in scientific research (Awadh et al., 2004). However, scientific evaluation of herbals is mandate before they are included in the mainstream of primary health care practice. In recent times, interest in traditional medicine has continuously been increasing, and therefore ethnobotanical studies have gained prominence to explore the traditional knowledge from tribal communities, particularly in the developing countries (Patrick, 2002). India possesses a total of 427 tribal communities with splendid diversity of indigenous tradition. The knowledge base and the practice have been marginalized due to political, social and economical reasons. Off late, interest in traditional medicine has continuously been increasing; various ethnobotanical studies have been initiated to explore the knowledge base from the various tribal groups (Kala, 2005; Jain, 2001; Sandhya et al., 2006; Ignacimuthu et al., 2006).

Many tribal communities in Tamilnadu meet their healthcare needs using plant products and preparations based on traditional knowledge that has been gained indigenously over a period of time and /or by practice (Patrick, 2002). It has been well established that herbal drugs obtained from plants are much safer, with fewer or no side effects in treating various ailments (Ayyanar and Ignacimuthu, 2005a,b). Several studies have revealed that tribal population, not only depend on plant based resources for medicines, food, forage and fuel, but also play a vital role in natural resource management that forms the core aspect of conservation biology (Ignacimuthu et al., 2006).

The main objective of this study was to assess the diversity of ethnomedicinal plant species used by Malayali tribes in Dharmapuri district and to document the traditional medical practices in healing ailments. Similar ethnobotanical studies have been reported in several parts of India to document the traditional knowledge that has been vanishing (Rajan et al., 2002; Ganesan et al., 2004; Sandhya et al., 2006; Ignacimuthu et al., 2006). Therefore, documenting indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources and their sustainable utilization.

Malayali tribes

Malayali tribes dwell in Sherveroyan hill ranges of Dharmapuri district (12°N 78.5°E). Of the schedule tribes (ST), Malayali, Irular, Kattunayakan, Kurumans and Kondareddis together constitute 85.3% of the ST population of the state. Malayalis are the largest tribal group with a population of 310,042, constituting 47.6% of the state ST population. The Malayali claim that they were caste Vellalas of Kancheepuram, Tamil Nadu, and that, following the invasion by several kings, they fled to the Sherveroyan hills (Thurston and Rangacharry 1975).

The indigenous people of the study area called Malayali. They inhabit Vattal Hills, (part of Sherveroyan hill

ranges) in Dharmapuri district, Tamil Nadu. In the Sherveroyan hills they are found at an altitude of up to 1700 m. Generally, Malayali are illiterate and they speak Tamil. Physically they are similar to the Semong of Malaya and other Indian tribal communities. Historically, these tribal communities have survived on their traditional knowledge base. Traditional medicines are the primary healthcare resources for the Malayali tribes to protect/ maintain their health. Tribal practitioners are curators of the society and have good knowledge of medicinal plants, diseases and treatment modalities.

Description of study area

The Eastern Ghats, a broken chain of mountains in the Indian peninsular extend from Coromandal in West Bengal to Kanyakumari in Tamil Nadu, is about 1600 km long in North-South direction (Fig. 1). The area of investigation approximately lies between 87°0' to 89°0' longitude and 28°0' to 37° 0' latitude. Every Malayali village has several hamlets. Hamlets are found in different elevations (1700m). Temperature in the study area ranges from 12°C to 25°C during Mar – Apr and averages between 12°C during Dec and 35°C during Apr – May.

Ethnobotanical survey

Field investigations were conducted in villages of the study area in Dharmapuri district during Dec 2007 to Sep 2008. More than 500 families and nearly 2750 members of Malayalis dwell in the study area. During the study, their daily activities were closely observed and interpersonal contacts were established by participating in several of their social and religious functions. There were 7 informants (5 males and 2 females) with in the age group of 39 to 75. Among them one was a local tribal practitioner.

Ethnobotanical data were collected according to the methodology suggested by Jain (2001). The ethnobotanical data were collected using questionnaire, interviews and discussions in their local dialect. The Flora of Presidency of Madras (Gamble, 1935) and The Flora of Tamil Nadu Carnatic (Matthew, 1983) were used for identification and authentication of the plants.

Results and Discussion

In Table 1, data obtained from the field survey are presented. In this study 27 plant species belonging to 16 families have been recorded. Many plant species belonging to families of Acanthaceae, Solanaceae and Asclepiadaceae are frequently used. The informations collected from this study are in agreement with the previous reports (Pushpangadan and Atal, 1984, Kala, 2005; Jain, 2001; Ayyanar and Ignacimuthu, 2005a,b; Sandhya et al., 2006; Ignacimuthu et al., 2006). For common ailments such as wounds and skin diseases more number of medication were used. On the other hand, few were used to alleviate problems such as cold, cough and asthma. Ayyanar and Ignacimuthu (2005a) reported that *Andrographis* sp. is used by tribal people to treat poisonous bites,

similar observations have been made in the present study. Healers in the area diagnose diseases based on symptoms but sometime they may also associate it to spirit. Therefore, preparation of medicines and treatment of diseases are sometimes accompanied by rituals. Tribal practitioner(s) use specific plant parts and dosages in treatment of specific ailments. Plant products are consumed raw or taken as decoction (juice)/ infusion (oral treatment) and paste (external application). Fresh leaves, root and stem were more frequently used when compared to other parts of the plant. However, in most of the cases, it was recorded that internal uses predominates external application. Juice and paste formulations were quite common for external applications. For topical application, the paste was mixed with oil. If more than one plant is used, such preparations are more or less similar to Siddha formulations. Sometimes the healer may mix several plants as ingredients to cure a single disease but detailed information on the role of the components used in such formulations are obscure.

The most important aspect of the Malayali tribal medicine is that fresh plant material is used for the preparation of medicine. Alternatively, if the fresh plant parts are not available, dried plant materials are used. For this reason several plants serve as alternative remedy to cure a single disease. From this study it is clear that Malayali tribal possess innate ability to discern the character of plants and exploit the plant resources to meet their health care needs.

Conclusion

This study depicts that traditional knowledge forms the basis for the treatment of various ailments among Malayalis. Still, this age old practice forms the basic aspect of their lifestyle and rituals. Plants such as *Andrographis*, *Adhatoda*, *Vitex* and *Plectranthus* are the lead species and members belonging to the family Acanthaceae and Asclepiadaceae were more frequently used. Data depicts that most of the remedies are preferred as oral. Further, most of the reported preparations are drawn from a single plant; formulations containing two or more plants are rarely used. Present study reveals that medicinal plants continue to play a major role in healthcare needs of Malayali community.

References

- 1) Awadh A, Ali N, Al-rahwi1K and Lindequist U (2004) Some medicinal plants used in Yemeni herbal medicine to treat Malaria. *African journal of Traditional, Complementary and Alternative Medicines* 1:72–76.
- 2) Ayyanar M and Ignacimuthu S (2005a) Ethnomedicinal plants used by the tribals of Tirunelveli hills to treat poisonous bites and skin diseases. *IJTK* 4:229-236.
- 3) Ayyanar M and Ignacimuthu S (2005b) Traditional Knowledge of Kani tribals in Kouthalai of Tirunelveli hills, Tamil Nadu, *India. Journal of Ethnopharmacology* 102(2):246-255.

- 4) Farnsworth NR (1998) Screening plants for new medicines. In Biodiversity Ed Wilson EO. National Academy Press, Washington, DC; 83-97.
- 5) Gamble JS (1935) The Flora of the Presidency of Madras. Adlard and Son's Ltd, London.
- 6) Ganesan S, Suresh N and Kesavan L (2004) Ethnomedicinal survey of lower Palni Hills of Tamil Nadu. *Indian Journal of Traditional Knowledge* 3(3):299-304.
- 7) Ignacimuthu S, Ayyanar M and Sankara Sivaraman K (2006) Ethnobotanical investigations among tribes in Madurai District of Tamil Nadu (India) *J Ethnobiol Ethnomed.* 2: 25-30.
- 8) Jain SK (2001) Ethnobotany in Modern India. Phytomorphology Golden Jubilee Issue: *Trends in Plant Sciences* 39-54.
- 9) Kala, CP (2005) Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of India. *Journal of Ethnobiology and Ethnomedicine.* 1:25-29
- 10) Matthew KM (1983) The Flora of Tamil Nadu Carnatic. In The Rapinat Herbarium. St Joseph's College, Tiruchirapalli, India.
- 11) Patrick OE (2002) Herbal Medicines: Challenges (Ed) *Tropical Journal of Pharmaceutical Research* 1(2):53-54.
- 12) Pushpangadan P and Atal CK (1984) Ethno-medico-botanical investigations in Kerala I. Some primitive tribal of Western Ghats and their herbal medicine. *Journal of Ethnopharmacology* 11(1):59-77.
- 13) Rajan S, Sethuraman M and Mukherjee PK (2002) Ethno biology of the Nilgiri Hills, India. *Phytotherapy Research*, 16(2):98-116.
- 14) Sandhya B, Thomas S, Isabel W and Shenbagarathai R (2006) Ethnomedicinal plants used by the valaiyan community of Piranmalai hills, Tamil Nadu, India – A pilot study. *African Journal of Traditional, Complementary and Alternative Medicines*, 3(1):101-114.
- 15) WHO (2000) General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine Geneva, Switzerland WHO/EDM/TRM/2000.1 pp 1-80.

Fig. 1. Location of the area studied in Tamil Nadu, India.



Table 1. Ethno-medicinal perspectives of botanicals used by Malayali tribes in Dharmapuri (TN), India

Binomial nomenclature	Family	Parts used
<i>Adhatoda zeylanica</i> Medicus.	Acanthaceae	Leaf paste taken orally to treat fever.
<i>Andrographis lineata</i> Wallich ex Nees.	Acanthaceae	Leaf paste applied on snake bitten site.
<i>Phlebophyllus kunthianum</i> Nees.	Acanthaceae	Leaf paste applied to treat nerve disorders.
<i>Cryptolepis buchananii</i> Roem and Schul.	Asclepiadaceae	Stem latex applied on skin to treat wounds
<i>Gymnema sylvestre</i> (Retz.) R. Br.	Asclepiadaceae	Powdered leaves taken to treat diabetes.
<i>Hemidesmus indicus</i> H.f.	Asclepiadaceae	Leaves taken to treat fever.
<i>Sonchus oleraceus</i> L.	Asteraceae	Leaf paste applied externally on wounds.
<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit taken internally to treat cold and cough.
<i>Dioscorea oppositifolia</i> L.	Dioscoreaceae	Paste of rhizome taken to treat stomachache.
<i>Acalypha paniculata</i> Miq.	Euphorbiaceae	Leaf Juice taken to prevent lose motion.
<i>Euphorbia antiquorum</i> L.	Euphorbiaceae	Latex applied on skin to relive body pain.
<i>Anisomeles malabarica</i> (L) RBr.Ex.Sims.	Lamiaceae	Leaf paste applied externally on wounds.
<i>Plectranthus coleoides</i> Benth.	Lamiaceae	Leaf juice of taken to reduce body pain.
<i>Asparagus racemosus</i> Willd.	Liliaceae	Leaf paste applied to heal cracks on foot.
<i>Cipadessa baccifera</i> Miq.	Meliaceae	Leaf paste taken orally to treat Diarrhea.
<i>Acacia caesia</i> (L) Willd.	Mimosaceae	Bark paste applied topically to heal wounds.
<i>Acacia leucophloea</i> (Roxb.) Willd.	Mimosaceae	Bark paste applied topically to heal wounds.
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Root powder taken to treat stomachache.
<i>Clausena dentata</i> (Willd.) Roem.	Rutaceae	Leaf paste applied in area to heal cut wounds.
<i>Toddalia asiatica</i> (L) Lam.	Rutaceae	Leaf decoction taken to treat stomachache.
<i>Solanum nigrum</i> L.	Solanaceae	Leaf paste applied externally to treat stomachache.
<i>Solanum trilobatum</i> L.	Solanaceae	Leaf juice taken orally to treat asthma.
<i>Centella asiatica</i> (L.) Urban.	Umbelliferae	Leaf juice taken to treat jaundice.
<i>Gmelina arborea</i> Roxb.	Verbenaceae	Bark juice taken to treat piles
<i>Vitex negundo</i> L.	Verbenaceae	Leaf vapor inhaled to treat cold and cough.

<i>Costus speciosus</i> (J. Koen.) Smith.	Zingiberaceae	Leaves used to treat diabetes.
<i>Elatteria cardamomum</i> (L) Maton.	Zingiberaceae	Fruits taken to treat stomachache.
